

What is claimed is:

1 1. A radio receiver comprising:
2 at least one amplifier to receive radio signals; and
3 a control circuit coupled to the at least one amplifier, wherein the control circuit
4 adjusts the operation of the at least one amplifier based on the received radio signals.

1 2. The radio receiver of claim 1, wherein the at least one amplifier is a LNA
2 to receive a RF signal and produce an amplified signal that is coupled to a down-
3 converting mixer that produces a mixer output, and the control circuit comprises:
4 a peak detector coupled to receive the mixer output to produce a peak signal;
5 an integrator coupled to the peak detector to receive the peak signal and produce
6 an integrated signal;
7 a mixer coupled to receive the integrated signal and a transmit power indicator to
8 produce a current control signal that is coupled to the LNA to control a bias current of the
9 LNA, wherein cross modulation associated with the received RF signal is reduced.

1 3. The radio receiver of claim 2, further comprising a second mixer coupled
2 to the output of the integrator and a receiver gain control signal to produce a VCO current
3 control signal that is coupled to a VCO associated with a PLL that drives the down-
4 converting mixer, wherein reciprocal mixing associated with the received RF signal is
5 reduced by adjustment of the VCO associated with the PLL.

1 4. An adaptive system for use with a radio receiver to adapt to interfering
2 signals associated with a received RF signal, the radio receiver includes a LNA to receive
3 the RF signal and produce an amplified signal that is coupled to a down-converting mixer
4 that produces a mixer output, the adaptive system comprises:
5 a peak detector coupled to receive the mixer output to produce a peak signal;
6 an integrator coupled to the peak detector to receive the peak signal and produce
7 an integrated signal; and
8 a mixer coupled to receive the integrated signal and a transmit power indicator to
9 produce a current control signal that is coupled to the LNA to control a bias current of the

10 LNA, wherein cross modulation associated with the received RF signal is reduced.

1 5. The adaptive system of claim 4, further comprising a filter coupled to
2 receive the mixer output and produce a filtered output that is coupled to the peak detector.

1 6. The adaptive system of claim 4, further comprising a LNA control circuit
2 coupled to the mixer to receive the current control signal and produce a LNA control
3 signal that is coupled to the LNA to control a bias current of the LNA, wherein cross
4 modulation associated with the received RF signal is reduced.

1 7. The adaptive system of claim 4, further comprising a second mixer
2 coupled to the output of the integrator and a receiver gain control signal to produce a
3 VCO current control signal that is coupled to a VCO associated with a PLL that drives
4 the down-converting mixer, wherein reciprocal mixing associated with the received RF
5 signal is reduced by adjustment of the VCO associated with the PLL.

1 8. The adaptive system of claim 7, wherein the VCO control current is
2 coupled to the VCO associated with the PLL via a VCO control circuit.

1 9. The adaptive system of claim 4, further comprising a buffer coupled
2 between the mixer output and a non-linear element.

1 10. The adaptive system of claim 9, wherein the non-linear element comprises
2 a diode element.

1 11. The adaptive system of claim 9, further comprising:
2 an second integrator coupled to the non-linear element and the buffer to produce a
3 second integrator output; and
4 a third mixer coupled to receive the second integrator output and a receiver power
5 indicator to produce a receive control signal.

1 12. The adaptive system of claim 11, wherein the receive control signal is
2 coupled to a receive control circuit, and wherein an output of the receive control circuit is
3 coupled to the down-converting mixer to adjust the down-converting mixer to reduce
4 intermodulation distortion.

13. A method for providing an adaptive system for use with a radio receiver to adapt to interfering signals associated with a received RF signal, the radio receiver includes an LNA to receive the RF signal and produce an amplified signal that is coupled to a down-converting mixer that produces a mixer output, the method comprising steps of:

- deriving a peak signal from the mixer output;
- integrating the peak signal to produce an integrated signal;
- mixing the integrated signal and a transmit power indicator to produce a current control signal; and
- controlling a bias current of the LNA with the current control signal, wherein cross modulation associated with the received RF signal is reduced.

14. The method of claim 13, wherein the step of mixing is a step of: mixing the integrated signal and a receive power indicator to produce a VCO control signal; and the step of controlling is a step of: controlling a VCO based on the VCO control signal, wherein the VCO is associated with a PLL coupled to the down-converting mixer, and wherein reciprocal mixing associated with the received RF signal is reduced by adjustment of the VCO associated with the PLL

15. The method of claim 13, wherein the step of mixing is a step of: mixing the integrated signal and a receive power indicator to produce a receive control signal; and the step of controlling is a step of: controlling the down-converting mixer based on the receive control signal, wherein intermodulation distortion associated with the received RF signal is reduced.